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Alberta

ENVIRONMENT



ALBERTA INDUSTRIAL WATER USE SURVEY

1972

VOLUME I

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ACKNOWLEDGMENTS

Acknowledgments are due to a large number of people who assisted with this study. Coordination of the industrial data was done by the General Services Division, Alberta Environment. They also provided valuable advice in a meaningful interpretation of the data. Major contributors were the staff, past and present, of the Environmental Survey and Process Analysis Branch, Alberta Environment. Assistance in compiling a list of companies was received from the Alberta Bureau of Statistics. The Agriculture Forestry Branch, Alberta Agriculture, is also to be thanked. Lastly, acknowledgments are due to the many firms and individuals who took the time and return questionnaires sent to them.

Prepared By

ALBERTA ENVIRONMENT
ENVIRONMENTAL PLANNING DIVISION

ALBERTA INDUSTRIAL WATER USE SURVEY
1972
VOLUME I

JUNE, 1974

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ABSTRACT

Industry in Alberta has increased considerably in the last two decades; and with this, there has been an increase in the quantity of water required.

The Alberta Department of the Environment, therefore, began an industrial water use survey of all establishments in the province involved in manufacturing, mining (including oil and gas) and thermal electric power generation during 1972.

The major aims of the survey were to update existing information, to discern patterns of water use among industries over space and time, and to provide additional information on which to base specific policy decisions concerning present and future water requirements.

There were a total of 2785 firms surveyed: 556 by the long questionnaire for major users, and 2,129 by the short questionnaire for the less significant users. About 90% of the major water users returned the long questionnaire, and 65% of the short questionnaires were returned. The remainder of the major water users were contacted by telephone and the relevant data was obtained.

For the major industrial water users, the total water intake in 1972 was 355,671 million gallons, total discharge was 302,327 million gallons, and the total industrial consumption was 53,344 million gallons.

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INTRODUCTION

The province of Alberta comprises 255,285 square miles, including 6,485 square miles of larger fresh water lakes and many rivers.

The greater portion of Alberta is part of the Interior Plain of North America, flat to gently undulating topography suited for agriculture. The north-eastern corner of the province includes a small section of the ice-scoured Canadian Shield. The south-western portion, the foothill-alpine region of the eastern Cordillera is rich in minerals and physical amenities such as the Rocky Mountains.

The province is made up of five major river basins (Figure 1); the Peace, Athabasca, North Saskatchewan, Red Deer, and the South Saskatchewan from north to south, respectively. Each basin possesses a different geography and predominant economic activity: mining and lumbering in the northern and western regions of the province, manufacturing and agriculture in the central and southern.

Today there are almost two million Albertans. Eighty-five percent are located in the central and southern regions of the province and seventy-five percent of this number reside in Alberta's two major urban centres, Edmonton and Calgary.

The economic climate of the province has been stimulating and expansive for the past two decades, due mainly to the impetus received from the petroleum industry. Alberta's central location provides manufacturers with a major advantage in serving western Canada, the northwestern United States, and the Canadian northland.

Figure 2 indicates the industrial trends in Alberta as shown by the net value of production for different industries. In 1945, agriculture accounted for over fifty percent of total net value of production and now accounts for less than twenty. Mining, which includes the oil and gas industry, accounted for ten percent of production in 1945, and in 1971 accounted for almost forty.

The gross value of production for the manufacturing industry in Alberta exceeded \$2 billion in 1972. In 1962 it first exceeded \$1 billion and in 1952 \$500 million. Figure 3 illustrates the composition of gross value of production, by industry, for manufacturing during 1971.

Calgary and Edmonton accounted for nearly \$1.3 billion, over two-thirds of the Alberta volume of manufacturing. Table 1 indicates the statistical composition of the manufacturing industry. Similarly, Table 2 shows the principal statistics for Alberta's mining industry.

THE SURVEY

During 1972 the Alberta Department of the Environment undertook an industrial water use survey of establishments in the province involved in manufacturing, mining, and thermal electric power generation. All surveyed industries were categorized according to the Canadian Standard Industrial Classification Code. These industries were those included in Divisions 4, 5 and 7, Group 4. The complete coding system is shown in Appendix 1.

The survey consisted of two types of questionnaires, (adapted from those used in the United States), a short one (Appendix II) and a longer more detailed one (Appendix III). The latter was sent to all major water users, and solicited detailed water use information including;

- (a) water intake,
- (b) source and purpose of intake,
- (c) recirculation,
- (d) water discharge,
- (e) treatment of discharged water,
- (f) monthly intake/discharge for 1972,
- (g) yearly intake/discharge totals for the period 1968-1971.

The short, less detailed questionnaire was sent to the remaining firms, soliciting information concerning the range of gallons used by the firms during 1972. The major objective of the short questionnaire was to identify major water users (one million or more gallons) who may not have received the larger more detailed questionnaire. If a firm receiving the short questionnaire was thereby known to have withdrawn more than one million gallons during 1972, the more detailed questionnaire was issued; and the result was a more accurate picture of water using industries.

if a company operated establishments at more than one location, a questionnaire was issued for each.

The 1972 survey has been successful. A total of 2,686 questionnaires were distributed, 557 long and 2,129 short. Almost ninety percent of the long questionnaires were returned and usable. About sixty-five percent of the short ones were returned. Four percent of this, or forty-six firms, were established as being major water users and were sent the detailed questionnaire.

A number of returned questionnaires were unusable because of a firm's being out of business at the time of solicitation, or, in the case of the larger questionnaire, because water use was negligible. It should be pointed out that the survey extracted only water use data. Results of this water use study are based on the longer, more detailed questionnaire only. The usages calculated from the short questionnaires are insignificant relative to the major users. A summary of the short questionnaire is included as table 5 page 14. Results of the long questionnaires are reproduced in tables 6, 7, 8, and 9.

VALIDITY OF INFORMATION

Preliminary analysis of the questionnaire indicates that some of the information reported cannot yet be presented. More detailed statistical analysis of these data will be required, to assess the degree of reliability and estimate totals. This includes information solicited on types of treatment processes, purpose of intake and recirculation, monthly intake and discharge, and yearly water use history. The reason for this is that many firms did not have records enabling them to answer these questions accurately. As a result, some estimated responses, others only answered partially, and others did not respond at all. Reproduction of any of this material now would therefore be inaccurate and misleading. It is hoped, however, that this information will be available when more work is done with the data from the questionnaires. At that time, a further volume of this report will contain the information.

The information in this report has been considered to be the more significant information requested. The degree of accuracy is $\pm 10\%$. This provides a meaningful range for decision making.

LOCATION OF WATER-USING INDUSTRY

The industrial activity with which the survey is concerned is scattered throughout the province. Certain industries, however, are more concentrated in urban areas, as shown by Table 3. This table is based on the detailed questionnaire. Firms in smaller urban communities or unincorporated rural areas have been included in the "Other" category.

Table 3
Industrial Location: Major Urban Centres,
Alberta, 1972
(Number of Firms)

Location	Division			Total
	Mines, Etc.	Manufacturing	Thermal Power	
Edmonton	3	100	2	105
Calgary	10	102		112
Lethbridge		35	1	36
Medicine Hat		19	1	20
Grande Prairie	1	12		13
Peace River		2		2
Red Deer		20		20
Other	138	93	7	238
TOTAL	152	383	11	546

This table indicates that most industry in Alberta is urban. This is particularly true of manufacturing: over half the firms are located in Calgary and Edmonton. But over ninety percent of the mines (including oil and gas wells) are in unincorporated areas, as are many thermal power plants.

Using the available data further, it is also possible to illustrate the distribution of industry over the five major river basins of Alberta. (See Table 4.) The appended charts and tables also present a breakdown of water use by river basin.

Table 4
Industrial Location: River Basins Alberta 1972
(Number of Firms)

Basin	Division			Total
	Mines, Etc.	Manufacturing	Thermal Power	
Peace	18	20	2	40
Athabasca	27	2	1	30
North Sask.	35	140	6	181
Red Deer	31	31		62
South Sask.	41	190	2	233
TOTAL	152	383	11	546

According to this table, firms in the mines division are distributed evenly among the five basins. The same is not true for manufacturing. The most noticeable finding indicated by the table is that the North and South Saskatchewan River basins appear to support most of the industry in Alberta, particularly manufacturing.

The large urban centres in the two respective basins no doubt influence this distribution. That is, Calgary, Lethbridge, and Medicine Hat together account for 156 of 190 manufacturing firms in the South Saskatchewan basin, and Edmonton, in the North Saskatchewan basin is the location for 100 of the 140 firms in that basin.

TOPOGRAPHY AND RIVER BASINS OF ALBERTA



FIGURE 1

DEFINITION OF TERMS

Value Added (Net Value of Production)

The value added by manufacturer is equal to the gross receipts (gross value of production) minus the value of goods and services (materials, supplies, fuel, electricity, etc.) required for production.

Gross Value of Production

The gross value of production is equal to gross receipts including the value of goods and services required for production.

Value of Shipments

The value of shipments is equal to the net selling value minus discounts, allowance, freight charges and excise taxes.

Consumption

Consumption, as related to water use, is equal to total water withdrawal (intake) by establishment, minus the total water discharged.

Gross Water Used

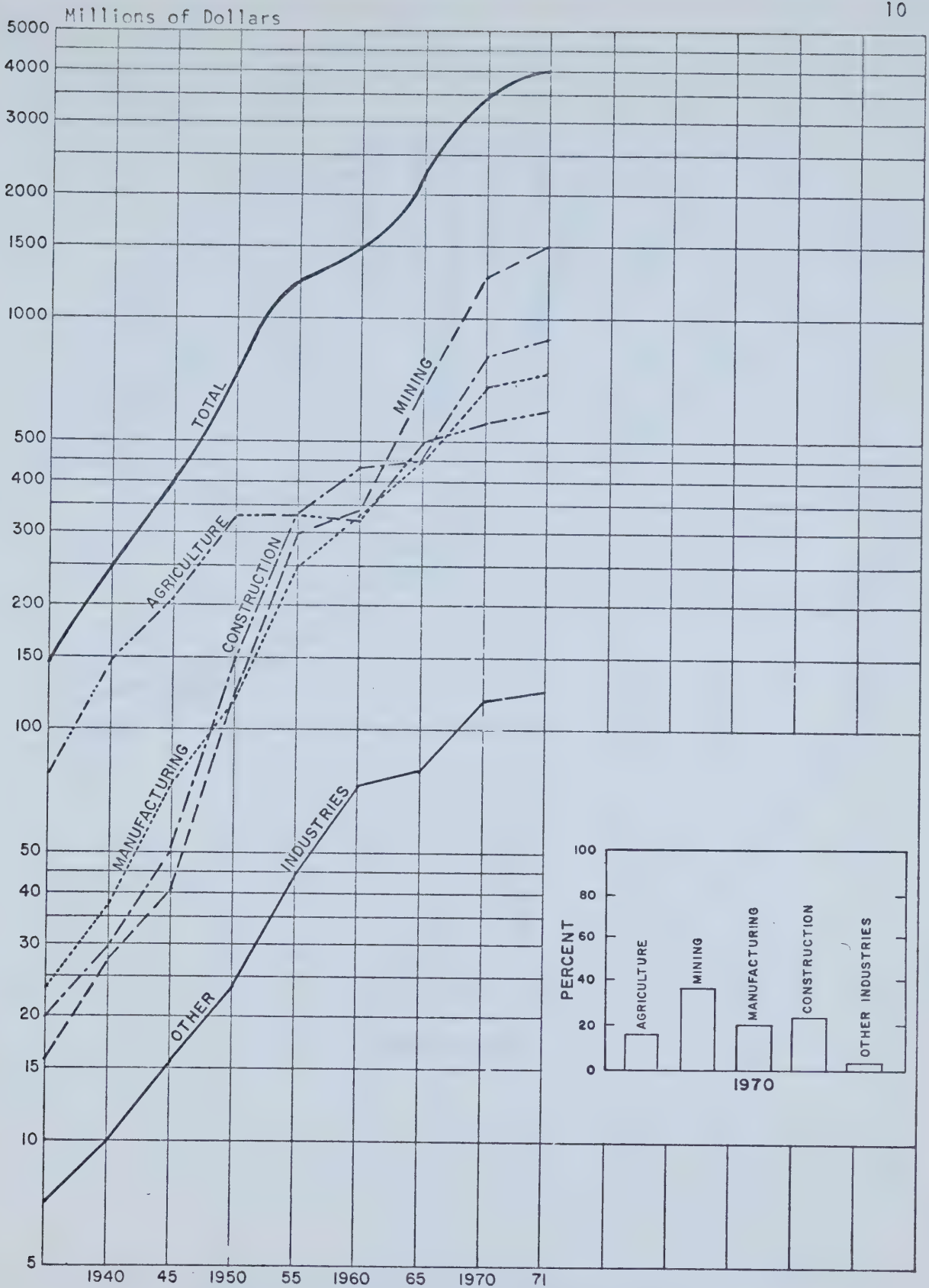
Gross water used is water intake plus the total quantity of water being recirculated by an establishment.

Degree of Recirculation

Degree of recirculation refers to the proportion of gross water applied that is obtained from recirculation. It is expressed as a percentage of gross water applied.

Acre-Foot

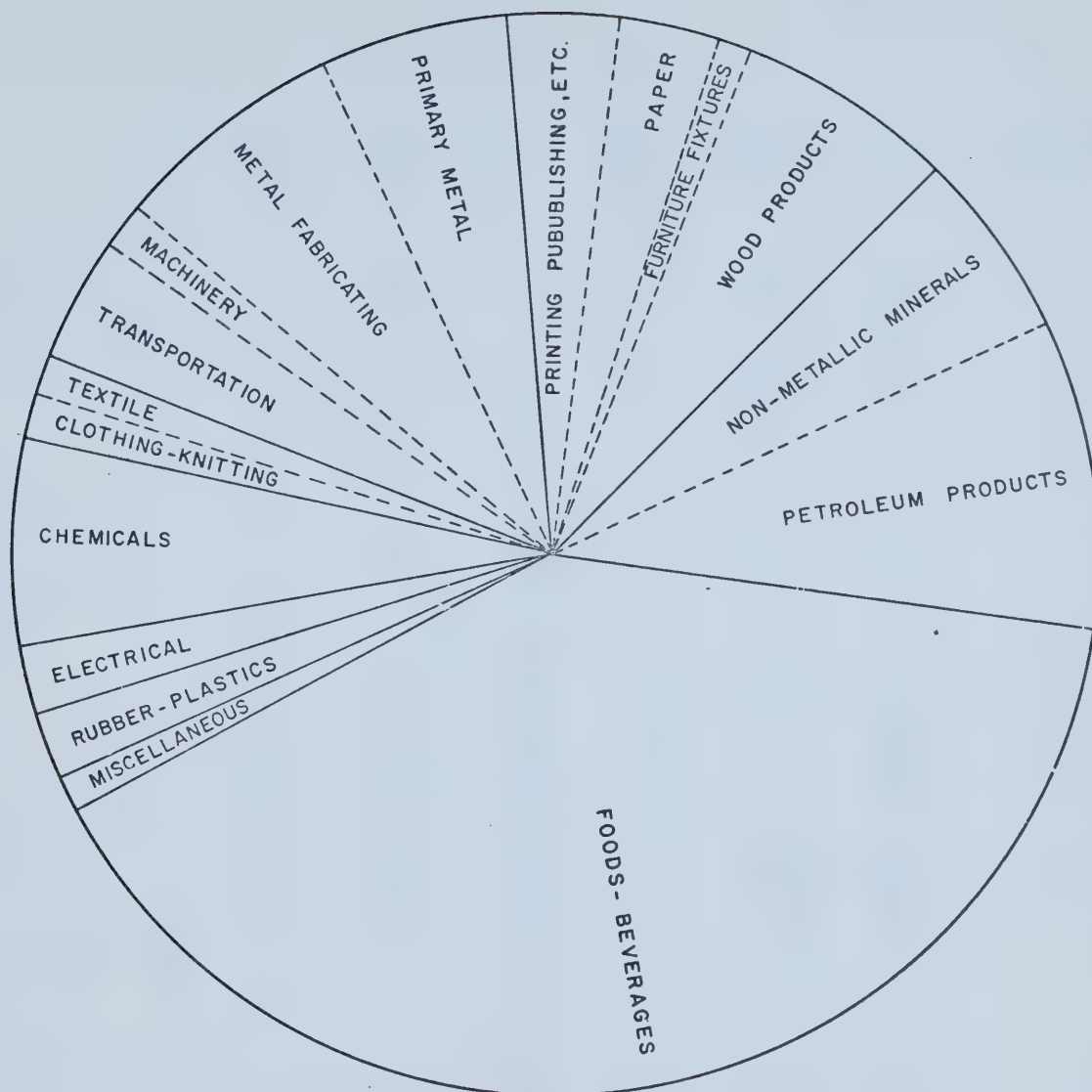
A volume of water one foot in depth and covering one acre of land; equal to 271,000 imperial gallons.



NET VALUE OF PRODUCTION
BY INDUSTRIES - ALBERTA
1935-1971

Source: Alberta Bureau of Statistics

Figure 2



\$1,992,000,000

**GROSS VALUE OF PRODUCTION
MANUFACTURING INDUSTRIES - ALBERTA
1971**

TABLE 1
PRELIMINARY PRINCIPAL STATISTICS
DIVISION 5
Manufacturing Industries - Alberta - 1971
(By Specified Industries)

DIVISION	GROUP	NO. ESTABLISHMENTS	TOTAL EMPLOYEES NO.	SALARIES AND WAGES (\$'000)	COST OF FUEL & ELECTRICITY (\$'000)	COST OF MATERIALS & SUPPLIES (\$'000)	VALUE ADDED (\$'000)	VALUE OF SHIPMENTS OF GOODS OF OWN MANUFACTURER (\$'000)
1	<u>Food & Beverages</u>							
	Meat & Poultry Products	52	x	x	x	x	x	x
	Slaughtering & Meat Processors	48	5,060	40,241	1,376	415,738	67,064	484,178
	Poultry	4	x	x	x	x	x	x
	Fruit & Vegetable Processing	4	165	992	67	5,057	3,398	8,522
	Canners & Preservers	2	x	x	x	x	x	x
	Frozen Vegetable Processors	2	x	x	x	x	x	x
	Dairy Products	90	2,622	17,347	1,388	64,757	30,202	96,347
	Flour & Cereal Products	7	424	2,766	211	22,012	4,192	26,415
	Feeds	88	690	4,759	573	36,696	9,248	46,517
	Bakery Products	170	x	x	x	x	x	x
	Biscuits	2	x	x	x	x	x	x
	Bakeries	168	1,713	10,527	624	12,931	17,759	31,314
	Other Food Industries	23	x	x	x	x	x	x
	Confectionary	6	18	79	4	146	112	262
	Beet Sugar Processors	3	x	x	x	x	x	x
	Vegetable Oil Mills	2	x	x	x	x	x	x
	Other Foods, N.E.S.	12	418	2,935	355	18,252	9,424	28,031
	Beverage Industries	29	x	x	x	x	x	x
	Carbonated Beverages	20	788	5,405	434	13,476	11,728	25,638
	Distilleries	1	x	x	x	x	x	x
	Breweries	6	634	5,691	306	8,409	18,704	27,419
	Wineries	2	x	x	x	x	x	x
TOTAL		463	13,612	96,823	6,121	638,061	193,513	837,696
3	Rubber & Plastics	37	885	6,573	425	14,495	12,385	27,305
4	Leather	10	204	1,063	28	1,991	1,891	3,910
5	Textiles	23	553	3,937	257	8,068	10,766	19,091
6&7	Clothing & Knitting	26	1,828	9,333	116	14,642	18,967	33,735
8	Wood	360	5,434	34,205	2,055	71,494	44,927	118,476
9	Furniture & Fixtures	108	1,211	6,978	157	9,089	10,217	19,463
10	Paper & Allied Industries	21	1,517	12,022	1,910	30,456	28,079	60,445
11	Printing, Publishing & Allied Industries	219	3,680	25,682	400	17,992	48,573	66,965
12	Primary Metals	23	2,828	24,940	3,136	81,441	38,179	122,756
13	Metal Fabricating	238	5,407	41,705	1,042	60,647	75,963	137,652
14	Machinery	43	1,409	11,827	433	21,130	15,301	36,864
15	Transportation Equipment	67	3,196	19,979	501	43,535	34,191	78,227
16	Electrical Products	19	711	4,452	283	14,350	15,406	30,039
17	<u>Non-Metallic Mineral Products</u>							
	Clay Products Mfrs.	9	319	2,165	204	1,276	3,698	5,179
	Domestic Clays	6	x	x	x	x	x	x
	Imported Clays	3	x	x	x	x	x	x
	Cement Mfrs.	3	x	x	x	x	x	x
	Stone Products Mfrs.	2	x	x	x	x	x	x
	Concrete Products Mfrs.:							
	Concrete Pipe	5	121	1,139	62	1,834	3,124	5,020
	Structural Concrete	6	364	3,135	112	3,387	5,532	9,031
	Concrete Products, N.E.S.	22	466	4,117	301	8,420	11,601	20,322
	Ready Mix Concrete Mfrs.	43	568	3,964	625	13,104	13,669	27,398
	Glass & Glass Products Mfrs.	6	x	x	x	x	x	x
	Glass Mfrs.	3	x	x	x	x	x	x
	Glass Products Mfrs.	3	3	12	-	20	16	36
	Lime Mfrs.	2	x	x	x	x	x	x
	Miscellaneous Non-Metallic Mineral Products Ind. N.E.S.	10	422	3,504	521	6,568	12,319	19,408
TOTAL		108	3,199	25,984	3,853	41,497	73,076	118,426
18	Petroleum Products	15	1,065	11,166	2,888	154,772	47,282	204,942
19	Chemical & Chemical Products	45	2,278	20,147	8,667	52,177	64,002	124,846
20	Miscellaneous Mfg.	158	1,098	6,982	186	6,379	9,841	16,407
TOTAL ALL INDUSTRIES		1,983	50,115	363,800	32,458	1,282,216	742,558	2,057,232

x Figures confidential and withheld.

SOURCE: Alberta Bureau of Statistics.

TABLE 2
PRINCIPAL STATISTICS OF THE MINING INDUSTRY, ALBERTA, 1965 - 1971

YEAR	ESTABLISHMENTS NO.	EMPLOYEES		COST OF FUEL AND ELECTRICITY \$'000	COST OF MATERIALS AND SUPPLIES \$'000	VALUE OF PRODUCTION \$'000
		NUMBER	SALARIES AND WAGES \$'000			
1965	295	11,553	80,228	10,094	22,088	722,706
1966	278	11,954	89,913	8,378	25,104	808,627
1967	285	12,745	105,615	8,747	27,996	935,052
1968	293	13,568	119,828	10,087	21,748	1,061,678
1969	324	14,182	135,627	12,200	33,627	1,154,431
1970	324	15,569	155,438	15,865	49,007	1,324,474
1971	339	16,718	180,601	18,735	53,645	1,552,148

SOURCE: Alberta Bureau of Statistics

TABLE 5
ESTIMATED INDUSTRIAL WATER INTAKE - ALBERTA 1972
SHORT QUESTIONNAIRE RESPONSE
(Thousands of Gallons)

DIVISION	MAJOR GROUP	INDUSTRIAL CLASSIFICATION NAME	EDMONTON	FT. SASKATCHEWAN	ST. ALBERT	CALGARY	LETHBRIDGE	DRUMHELLER	MEDICINE HAT	RED DEER	CANROSE	WETASKIWIN	GRANDE PRAIRIE	PEACE RIVER	FT. MCMURRAY	REST OF PROVINCE
05	01	Food & Beverage	6,600	50	50	10,800	2,250	100	1,450	1,000	400	3,400	400	50	300	37,300
	03	Rubber & Plastic Products	2,150		300	2,200										
	04	Leather	200			150				50						100
	05	Textile	400			350	50									50
	06	Knitting Mills	50			50										
	07	Clothing	1,050			550										
	08	Wood	1,550			1,300	200		350	100	100		50	300		3,950
	09	Furniture & Fixture	2,600			2,150	100		100	50	50	100				200
	10	Paper & Allied	150			7,900										
	11	Printing, Publishing & Allied	3,000			5,500	300	50	50	200	100	100	350	100	50	3,250
	12	Primary Metal	850			900	300						50			
	13	Metal Fabricating	26,500	50	50	10,400	1,000		3,450	400	50		150	300		1,450
	14	Machinery	3,350			800	400			100			50			1,350
	15	Transportation Equipment	2,950			1,900	1,850		50	850		600		50		1,150
	16	Electrical Products	1,550			1,750										800
	17	Non-Metallic Metal Products	5,100			2,400	900		600	350	50	300	50		750	5,550
	18	Petroleum & Coal Products	450			800										650
	19	Chemical & Chemical Products	750	300		2,050		50								
	20	Miscellaneous Manufacturing	4,350			3,500	300	50	100	150	50		350			1,150
04	03	Non-Metal Mines	50													
	04	Quarries & Sand Pits	12,050									300				1,150
		TOTAL	75,500	450	400	55,500	8,750	250	6,150	3,250	800	4,800	1,450	800	1,100	63,000

TABLE 6

WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
SUMMARY
(MILLIONS OF GALLONS)

04 MINES, QUARRIES & OIL WELLS

STANDARD IND CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
0402	MINERAL FUELS					
0402-061	COAL MINES	528	1026	1554	288	240
0402-064	CRUDE PETR. & NATURAL GAS IND.	5004	122642	127646	2738	2266
MAJOR	TOTAL	5532	123668	129200	3026	2506
0403	NON-METAL MINING (EXCEPT COAL)					
0403-079	MISC. NONMETAL MINES	1580		1580	1580	
MAJOR	TOTAL	1580		1580	1580	
0404	QUARRIES AND SAND PITS					
0404-087	SAND PITS OR QUARRIES	6240	9571	15811	2772	3468
MAJOR	TOTAL	6240	9571	15811	2772	3468
	DIVISION TOTAL	13352	133239	146591	7378	5974

TABLE 6 CONTINUED
 WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
 SUMMARY
 (MILLIONS OF GALLONS)

05 MANUFACTURING INDUSTRIES

STAND'D IND CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
0501	FOOD AND BEVERAGES					
0501-101	MEAT AND POULTRY PRODUCTS	2518	2951	5469	2324	194
0501-103	FRUIT AND VEG PROCESSING PLANT	256		256	212	44
0501-104	DAIRY PRODUCTS	260	320	580	211	49
0501-105	FLOUR & BREAKFAST CEREAL PROD	5		5	1	4
0501-106	FEED INDUSTRY	158	32	190	145	13
0501-107	BAKERY PRODUCTS	14		14	6	8
0501-108	MISCELLANEOUS FOOD INDUSTRIES	1295	3325	4620	1254	41
0501-109	BEVERAGE INDUSTRIES	1142	1924	3066	943	199
MAJOR	TOTAL	5648	8552	14200	5096	552
0503	RUBBER AND PLASTICS PRODUCTS					
0503-162	RUBBER PRODUCTS INDUSTRIES	67	60	127	62	5
0503-165	PLASTIC FABRICATING INDUSTRY	7		7	7	
MAJOR	TOTAL	74	60	134	69	5
0504	LEATHER INDUSTRIES					
0504-172	LEATHER TANNERIES	44		44	44	
MAJOR	TOTAL	44		44	44	
0505	TEXTILES INDUSTRIES					
0505-183	MANMADE FIBRE, YARN, CLOTH MILLS	3		3		3
MAJOR	TOTAL	3		3		3
0507	CLOTHING INDUSTRIES					
0507-249	MISC CLOTHING IND	3		3	3	
MAJOR	TOTAL	3		3	3	
0508	WOOD INDUSTRIES					
0508-251	SAWMILLS, PLANING MILLS, SHINGLE	24		24	24	
0508-259	MISCELLANEOUS WOOD INDUSTRIES	18	375	393	5	13
MAJOR	TOTAL	42	375	417	29	13
0509	FURNITURE & FIXTURE INDUSTRIES					
0509-264	OFFICE FURNITURE MANUF	1		1		1
MAJOR	TOTAL	1		1		1

TABLE 6 CONTINUED

WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
SUMMARY
(MILLIONS OF GALLONS)

05 MANUFACTURING INDUSTRIES

STAND'D IND CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
0510	PAPER & ALLIED INDUSTRIES					
0510-271	PULP AND PAPER MILLS	7917		7917	6967	950
0510-272	ASPHALT ROOFING MANUFACTURERS	193	34	227	174	19
0510-273	PAPER BOX & BAG MANUF	25	1	26	8	17
0510-274	MISCELLANEOUS PAPER CONVERTERS	1		1		1
MAJOR	TOTAL	8136	35	8171	7149	987
0511	PRINT, PUBLISH. & ALLIED INDUS					
0511-289	PUBLISHING & PRINTING	10		10	6	4
MAJOR	TOTAL	10		10	6	4
0512	PRIMARY METAL INDUSTRIES					
0512-291	IRON & STEEL MILLS	1	50	51	1	
0512-292	STEEL PIPE AND TUBE MILLS	48	2385	2433	48	
0512-294	IRON FOUNDRIES	33	3	36	30	3
0512-295	SMEETING AND REFINING	860	25769	26629	335	525
0512-296	ALUMINUM ROLLING, CASTING	35	62	97	34	1
0512-298	METAL ROLLING, CASTING, EXTRUDIN	1		1		1
MAJOR	TOTAL	978	28269	29247	448	530
0513	METAL FABRICATING INDUSTRIES					
0513-302	FABRICATED STRUCT. METAL INDUS	310	4105	4415	223	87
0513-304	METAL STAMPING, PRESSING INDUST	1		1	1	
0513-305	WIRE PRODUCTS MANUFACTURING	4		4	4	
0513-309	MISC. METAL FABRICATING INDUST	2		2	2	
MAJOR	TOTAL	317	4105	4422	230	87
0514	MACHINERY INDUSTRIES					
0514-315	MISC MACHINERY & EQUIP MANUF	23		23		23
MAJOR	TOTAL	23		23		23
0515	TRANSPORTATION EQUIP. INDUSTR					
0515-324	TRUCK BODY & TRAILER MANUF	1		1	1	
0515-325	MOTOR VEHICLE PARTS & ACCESS-MA	8		8	8	
0515-326	RAILROAD ROLLING STOCK IND	93	94	187	84	9
MAJOR	TOTAL	102	94	196	93	9

TABLE 6 CONTINUED
 WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
 SUMMARY
 (MILLIONS OF GALLONS)

05 MANUFACTURING INDUSTRIES

STANDARD IND. CLS. CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
0516 ELECTRICAL PRODUCTS INDUSTRIES						
0516-338	MANUF. OF ELECTRICAL CABLE & WIRE	27		27	27	
0516-339	MANUF. OF MISC. ELECTRICAL PROD	54		54	53	1
MAJOR	TOTAL	81		81	80	1
0517 NON-METALLIC MINERAL PRODUCTS						
0517-351	CLAY PRODUCTS MANUFACTURERS	11		11	7	4
0517-352	CEMENT MANUFACTURERS	234	100	334	38	196
0517-354	CONCRETE PRODUCTS MANUFACTURER	90	4	94	51	39
0517-355	READYMIX CONCRETE MANUFACTURER	495	324	819	458	37
0517-356	GLASS AND GLASS PRODUCTS	37	298	335	24	13
0517-358	LIME MANUFACTURERS	109	210	319	26	83
0517-359	MISC. NON-METALLIC MINERAL PRO	17		17		17
MAJOR	TOTAL	993	936	1929	604	389
0518 PETROLEUM AND COAL PRODUCTS						
0518-365	PETROLEUM REFINERIES	8384	16723	25107	7209	1175
0518-369	MISC. PETROLEUM & COAL PRODUCTS	776	2147	2923	698	78
MAJOR	TOTAL	9160	18870	28030	7907	1253
0519 CHEMICAL & CHEMICAL PRODUCTS						
0519-372	MIXED FERTILIZERS	14100	25471	39571	13264	836
0519-373	PLASTICS & SYNTHETIC RESINS	156	6975	7131	43	113
0519-378	INDUSTRIAL CHEMICALS	4423	70038	74461	3284	1139
0519-379	MISC. CHEMICAL INDUSTRIES	428	12	440	338	90
MAJOR	TOTAL	19107	102496	121603	16929	2178
0520 MISC. MANUFACTURING IND.						
0520-399	MISC. MANUFACT. INDUSTRIES NES	49		49	45	4
MAJOR	TOTAL	49		49	45	4
DIVISION TOTAL		44771	163792	208563	38732	6039

TABLE 6 CONTINUED
 WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
 SUMMARY
 (MILLIONS OF GALLONS)

07 TRANS., COMM. & OTHER UTILITIES

STANDARD IND. CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMPTION
0704	ELEC. POWER, GAS & WATER UTILITIES					
0704-572	THERMAL ELECTRIC POWER	297545	20112	317657	297214	331
MAJOR	TOTAL	297545	20112	317657	297214	331
DIVISION	TOTAL	297545	20112	317657	297214	331

TABLE 6 CONTINUED

WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
SUMMARY
(MILLIONS OF GALLONS)

STANDARD IND CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
GRAND	TOTAL	355668	317143	672811	343324	12344

TABLE 7

WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

04 MINES, QUARRIES & OIL WELLS

STANDARD IND CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLIC UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
0402	MINERAL FUELS									
0402-061	COAL MINES	528	4	500	23	288		160	127	1
0402-064	CRUDE PETR. & NATURAL GAS IND.	5004	85	3655	1261	2738		474	2052	207
MAJOR	TOTAL	5532	89	4155	1284	3026		634	2179	208
0403	NON-METAL MINING (EXCEPT COAL)									
0403-079	MISC. NONMETAL MINES	1580		1580		1580		1580		
MAJOR	TOTAL	1580		1580		1580		1580		
0404	QUARRIES AND SAND PITS									
0404-087	SAND PITS OR QUARRIES	6240		6229	11	2772		2760	12	
MAJOR	TOTAL	6240		6229	11	2772		2760	12	
DIVISION	TOTAL	13352	89	11964	1295	7378		4974	2191	208

TABLE 7 CONTINUED

WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
(MILLIONS OF GALLONS)

05 MANUFACTURING INDUSTRIES

STAND'D IND CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
0501	FOOD AND BEVERAGES									
0501-101	MEAT AND POULTRY PRODUCTS	2518	1810		708	2324	2317	6		
0501-103	FRUIT AND VEG PROCESSING PLANT	256	256			212	131	4	2	75
0501-104	DAIRY PRODUCTS	260	225	28	7	211	211			
0501-105	FLOUR & BREAKFAST CEREAL PROD	5	5			1	1			
0501-106	FEED INDUSTRY	158	150			145	144		1	
0501-107	BAKERY PRODUCTS	14	14			6	6			
0501-108	MISCELLANEOUS FOOD INDUSTRIES	1295	90	1203		1254	50	1189	7	5
0501-109	BEVERAGE INDUSTRIES	1142	672		469	943	864	1		77
MAJOR	TOTAL	5648	3222	1231	1191	5096	3724	1200	10	157
0503	RUBBER AND PLASTICS PRODUCTS									
0503-162	RUBBER PRODUCTS INDUSTRIES	67	1		66	62	62			
0503-165	PLASTIC FABRICATING INDUSTRY	7	7			7	7			
MAJOR	TOTAL	74	8		66	69	69			
0504	LEATHER INDUSTRIES									
0504-172	LEATHER TANNERIES	44	44			44	44			
MAJOR	TOTAL	44	44			44	44			
0505	TEXTILES INDUSTRIES									
0505-183	MANMADE FIBRE, YARN, CLOTH MILLS	3	3							
MAJOR	TOTAL	3	3							
0507	CLOTHING INDUSTRIES									
0507-249	MISC CLOTHING IND	3	3			3	3			
MAJOR	TOTAL	3	3			3	3			
0508	WOOD INDUSTRIES									
0508-251	SAWMILLS, PLANING MILLS, SHINGLE	24	24			24	23			
0508-259	MISCELLANEOUS WOOD INDUSTRIES	18	18			5	4		1	
MAJOR	TOTAL	42	42			29	27		1	
0509	FURNITURE & FIXTURE INDUSTRIES									
0509-264	OFFICE FURNITURE MANUF	1	1							
MAJOR	TOTAL	1	1							

TABLE 7 CONTINUED

WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

05 MANUFACTURING INDUSTRIES

STAND'D IND CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBL UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
0510	PAPER & ALLIED INDUSTRIES									
0510-271	PULP AND PAPER MILLS	7917		7917		6967	6967			
0510-272	ASPHALT ROOFING MANUFACTURERS	193	170	3	20	174	170			4
0510-273	PAPER BOX & BAG MANUF	25	25			8	7			
0510-274	MISCELLANECUS PAPER CCNVERTERS	1	1							
MAJOR	TOTAL	8136	196	7920	20	7149	7144			4
0511	PRINT, PUBLISH, & ALLIED INDUS									
0511-289	PUBLISHING & PRINTING	10	10			6	6			
MAJOR	TOTAL	10	10			6	6			
0512	PRIMARY METAL INDUSTRIES									
0512-291	IRON & STEEL MILLS	1	1			1	1			
0512-292	STEEL PIPE AND TUBE MILLS	48	48			48	48			
0512-294	IRON FOUNDRIES	33	33			30	5			
0512-295	SMEETING AND REFINING	860		860		335		335	25	
0512-296	ALUMINUM ROLLING,CASTING	35	35			34	34			
0512-298	METAL ROLLING,CASTING,EXTRUDIN	1	1							
MAJOR	TOTAL	978	118	860		448	88	335	25	
0513	METAL FABRICATING INDUSTRIES									
0513-302	FABRICATED STRUCT, METAL INDUS	310	260	50		223	211	12		
0513-304	METAL STAMPING,PRESSING INDUST	1	1			1	1			
0513-305	WIRE PRODUCTS MANUFACTURING	4	4			4	4			
0513-309	MISC. METAL FABRICATING INDUST	2	2			2	2			
MAJOR	TOTAL	317	267	50		230	218	12		
0514	MACHINERY INDUSTRIES									
0514-315	MISC MACHINERY&EQUIP MANUF	23	23							
MAJOR	TOTAL	23	23							
0515	TRANSPORTATION EQUIP. INDUSTR									
0515-324	TRUCK BODY & TRAILER MANUF	1	1			1	1			
0515-325	MOTOR VEHICLE PARTS & ACCES-MA	8	8			8	8			
0515-326	RAILROAD ROLLING STOCK IND	93	93			84	60		23	
MAJOR	TOTAL	102	102			93	69		23	

TABLE 7 CONTINUED
 WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

05 MANUFACTURING INDUSTRIES

STANDARD IND CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLIC UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
0516	ELECTRICAL PRODUCTS INDUSTRIES									
0516-338	MANUF OF ELECTRICAL CABE & WIRE	27	27			27	27			
0516-339	MANUF. OF MISC. ELECTRICAL PROD	54	54			53	51			
MAJOR	TOTAL	81	81			80	78			
0517	NON-METALLIC MINERAL PRODUCTS									
0517-351	CLAY PRODUCTS MANUFACTURERS	11	11			7	7			
0517-352	CEMENT MANUFACTURERS	234	96	117	21	38	7	31		
0517-354	CONCRETE PRODUCTS MANUFACTURER	90	33	48	9	51	4	45	1	
0517-355	READYMIX CONCRETE MANUFACTURER	495	17	436	41	458		421	33	2
0517-356	GLASS AND GLASS PRODUCTS	37	37			24	23			
0517-358	LIME MANUFACTURERS	109			109	26			26	
0517-359	MISC. NON-METALLIC MINERAL PRO	17	17							
MAJOR	TOTAL	993	211	601	180	604	41	497	60	2
0518	PETROLEUM AND COAL PRODUCTS									
0518-365	PETROLEUM REFINERIES	8384	23	8306	54	7209		7118	89	
0518-369	MISC PETROLEUM & COAL PRODUCTS	776	87	689		698	89	609		
MAJOR	TOTAL	9160	110	8995	54	7907	89	7727	89	
0519	CHEMICAL & CHEMICAL PRODUCTS									
0519-372	MIXED FERTILIZERS	14100	927	13123	55	13264		13203		60
0519-373	PLASTICS & SYNTHETIC RESINS	156	156			43	1	15	27	
0519-378	INDUSTRIAL CHEMICALS	4423	32	4389	1	3284	23	3172	89	
0519-379	MISC. CHEMICAL INDUSTRIES	428	8	12	408	338	1		325	12
MAJOR	TOTAL	19107	1123	17524	464	16929	25	16390	441	72
0520	MISC. MANUFACTURING IND.									
0520-399	MISC. MANUFACT. INDUSTRIES NES	49	49			45	45			
MAJOR	TOTAL	49	49			45	45			
DIVISION	TOTAL	44771	5613	37181	1975	38732	11670	26161	649	235

TABLE 7 CONTINUED

WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

07 TRANS., COMM. & OTHER UTILITIES										
STANDARD IND. CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
0704	ELEC. POWER, GAS & WATER UTILI									
0704-572	THERMAL ELECTRIC POWER	297545	550	296995		297214		286507		10705
MAJOR	TOTAL	297545	550	296995		297214		286507		10705
DIVISION	TOTAL	297545	550	296995		297214		286507		10705

TABLE 7 CONTINUED

WATER USE BY INDUSTRIAL CLASSIFICATION - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

STANDARD IND CLS CODE MIN	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
GRAND	TOTAL	355668	6252	346140	3270	343324	11670	317642	2849	11148

TABLE 8

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
SUMMARY
(MILLIONS OF GALLONS)

BASIN 01 PEACE

STANDARD INDUSTRIAL CLASS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
04	MINES, QUARRIES & OIL WELLS					
0402	MINERAL FUELS					
0402-064	CRUDE PETR. & NATURAL GAS IND.	1365	106	1471	862	503
MAJOR	TOTAL	1365	106	1471	862	503
DIVISION	TOTAL	1365	106	1471	862	503
05	MANUFACTURING INDUSTRIES					
0501	FOOD AND BEVERAGES					
0501-101	MEAT AND POULTRY PRODUCTS	9		9	9	1
0501-109	BEVERAGE INDUSTRIES	3		3	2	1
MAJOR	TOTAL	12		12	11	1
0508	WOOD INDUSTRIES					
0508-251	SAWMILLS, PLANING MILLS, SHINGLE	16		16	16	
MAJOR	TOTAL	16		16	16	
0517	NON-METALLIC MINERAL PRODUCTS					
0517-355	READYMIX CONCRETE MANUFACTURER	4		4		4
MAJOR	TOTAL	4		4		4
DIVISION	TOTAL	32		32	27	5
07	TRANS., COMM. & OTHER UTILITIES					
0704	ELEC. POWER, GAS & WATER UTILI					
0704-572	THERMAL ELECTRIC POWER	62	3450	3512		62
MAJOR	TOTAL	62	3450	3512		62
DIVISION	TOTAL	62	3450	3512		62
RIVER-BASIN	TOTAL	1459	3556	5015	889	570

TABLE 8 CONTINUED
 07/08/74 WATER USE BY RIVER BASIN - ALBERTA 1972
 SUMMARY
 (MILLIONS OF GALLONS)

BASIN 02 ATHABASCA		1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
STANDARD INDUSTIAL CLASS COD	STANDARD INDUSTRIAL CLASSIFICATION					
04	MINES, QUARRIES & OIL WELLS					
0402	MINERAL FUELS					
0402-061	COAL MINES	495	1025	1520	271	224
0402-064	CRUDE PETR. & NATURAL GAS IND.	992	14035	15027	558	434
MAJOR	TOTAL	1487	15060	16547	829	658
0404	QUARRIES AND SAND PITS					
0404-087	SAND PITS OR QUARRIES	6100	9200	15300	2760	3340
MAJOR	TOTAL	6100	9200	15300	2760	3340
DIVISION TOTAL		7587	24260	31847	3589	3998
05	MANUFACTURING INDUSTRIES					
0501	FOOD AND BEVERAGES					
0501-104	DAIRY PRODUCTS	4		4		4
MAJOR	TOTAL	4		4		4
0510	PAPER & ALLIED INDUSTRIES					
0510-271	PULP AND PAPER MILLS	7917		7917	6967	950
MAJOR	TOTAL	7917		7917	6967	950
DIVISION TOTAL		7921		7921	6967	954
RIV-EASN TOTAL		15508	24260	39768	10556	4952

TABLE 8 CONTINUED

07/08/74

 WATER USE BY RIVER BASIN - ALBERTA 1972
 SUMMARY
 (MILLIONS OF GALLONS)

BASIN 03 NORTH SASK						
STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
04	MINES, QUARRIES & OIL WELLS					
0402	MINERAL FUELS					
0402-064	CRUDE PETR. & NATURAL GAS IND.	890	34876	35766	600	290
MAJOR	TOTAL	890	34876	35766	600	290
0403	NON-METAL MINING (EXCEPT COAL)					
0403-079	MISC. NONMETAL MINES	1580		1580	1580	
MAJOR	TOTAL	1580		1580	1580	
	DIVISION TOTAL	2470	34876	37346	2180	290
05	MANUFACTURING INDUSTRIES					
0501	FOOD AND BEVERAGES					
0501-101	MEAT AND POULTRY PRODUCTS	961	2305	3266	816	145
0501-103	FRUIT AND VEG PROCESSING PLANT	8		8	4	4
0501-104	DAIRY PRODUCTS	93	117	210	70	23
0501-105	FLOUR & BREAKFAST CEREAL PROD	1		1	1	
0501-106	FEED INDUSTRY	149	31	180	140	9
0501-107	BAKERY PRODUCTS	9		9	6	3
0501-109	BEVERAGE INDUSTRIES	216	400	616	182	34
MAJOR	TOTAL	1437	2853	4290	1219	218
0504	LEATHER INDUSTRIES					
0504-172	LEATHER TANNERIES	44		44	44	
MAJOR	TOTAL	44		44	44	
0505	TEXTILES INDUSTRIES					
0505-183	MANMADE FIBRE, YARN, CLOTH MILLS	3		3		3
MAJOR	TOTAL	3		3		3
0507	CLOTHING INDUSTRIES					
0507-249	MISC CLOTHING IND	3		3	3	
MAJOR	TOTAL	3		3	3	

TABLE 8 CONTINUED

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
SUMMARY
(MILLIONS OF GALLONS)

BASIN 03 NORTH SASK

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
0508	WOOD INDUSTRIES					
0508-251	SAWMILLS, PLANING MILLS, SHINGLE	3		3	3	
0508-259	MISCELLANEOUS WOOD INDUSTRIES	10	360	370	1	9
MAJOR	TOTAL	13	360	373	4	9
0510	PAPER & ALLIED INDUSTRIES					
0510-272	ASPHALT ROOFING MANUFACTURERS	8	34	42	4	4
0510-273	PAPER BOX & BAG MANUF	4		4	3	1
MAJOR	TOTAL	12	34	46	7	5
0512	PRIMARY METAL INDUSTRIES					
0512-291	IRON & STEEL MILLS	1	50	51	1	
0512-292	STEEL PIPE AND TUBE MILLS	42	2090	2132	42	
0512-294	IRON FOUNDRIES	5		5	3	2
0512-295	SMELTING AND REFINING	860	25769	26629	335	525
MAJOR	TOTAL	908	27909	2817	381	527
0513	METAL FABRICATING INDUSTRIES					
0513-302	FABRICATED STRUCT. METAL INDUS	301	4105	4406	214	87
0513-304	METAL STAMPING, PRESSING INDUST	1		1	1	
MAJOR	TOTAL	302	4105	4407	215	87
0515	TRANSPORTATION EQUIP. INDUST					
0515-324	TRUCK BODY & TRAILER MANUF	1		1	1	
0515-326	RAILROAD ROLLING STOCK IND	14	12	26	11	3
MAJOR	TOTAL	15	12	27	12	3
0517	NON-METALLIC MINERAL PRODUCTS					
0517-352	CEMENT MANUFACTURERS	117	100	217	7	110
0517-354	CONCRETE PRODUCTS MANUFACTURER	29		29	9	20
0517-355	READYMIX CONCRETE MANUFACTURER	40	324	364	30	10
0517-356	GLASS AND GLASS PRODUCTS	34	79	113	22	12
MAJOR	TOTAL	220	503	723	68	152

TABLE 8 CONTINUED

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
SUMMARY
(MILLIONS OF GALLONS)

BASIN 03 NORTH SASK

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
0518	PETROLEUM AND COAL PRODUCTS					
0518-365	PETROLEUM REFINERIES	2063	16723	18786	1532	531
0518-369	MISC PETROLEUM & COAL PRODUCTS	125	2147	2272	84	41
MAJOR	TOTAL	2188	18870	21058	1616	572
0519	CHEMICAL & CHEMICAL PRODUCTS					
0519-372	MIXED FERTILIZERS	910	18800	19710	377	533
0519-373	PLASTICS & SYNTHETIC RESINS	156	6975	7131	43	113
0519-378	INDUSTRIAL CHEMICALS	3709	62778	66487	2713	996
0519-379	MISC. CHEMICAL INDUSTRIES	19	12	31	15	4
MAJOR	TOTAL	4794	88565	93359	3148	1646
0520	MISC. MANUFACTURING IND.					
0520-399	MISC. MANUFACT. INDUSTRIES NES	49		49	45	4
MAJOR	TOTAL	49		49	45	4
DIVISION	TOTAL	9988	143211	153199	6762	3226
07	TRANS., COMM. & OTHER UTILITIES					
0704	ELEC. POWER, GAS & WATER UTILI					
0704-572	THERMAL ELECTRIC POWER	283268	16662	299930	283011	257
MAJOR	TOTAL	283268	16662	299930	283011	257
DIVISION	TOTAL	283268	16662	299930	283011	257
RIV-EASH	TOTAL	295726	194749	490475	291953	3773

TABLE 8 CONTINUED

07/C8/74

WATER USE BY RIVER BASIN - ALBERTA 1972
SUMMARY
(MILLIONS OF GALLONS)

BASIN 04 RED DEER

STANDARD INDUSTRIAL CLASS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GRCS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMPTION
04	MINES, QUARRIES & OIL WELLS					
0402	MINERAL FUELS					
0402-064	CRUDE PETR. & NATURAL GAS IND.	418	7115	7533	320	98
MAJOR	TOTAL	418	7115	7533	320	98
DIVISION	TOTAL	418	7115	7533	320	98
05	MANUFACTURING INDUSTRIES					
0501	FOOD AND BEVERAGES					
0501-101	MEAT AND POULTRY PRODUCTS	142	2	144	142	1
0501-104	DAIRY PRODUCTS	77	110	187	76	1
0501-109	BEVERAGE INDUSTRIES	3		3	3	
MAJOR	TOTAL	222	112	334	221	1
0518	PETROLEUM AND COAL PRODUCTS					
0518-365	PETROLEUM REFINERIES	12		12	1	11
MAJOR	TOTAL	12		12	1	11
DIVISION	TOTAL	234	112	346	222	12
RIVER-BASIN	TOTAL	652	7227	7879	542	110

TABLE 8 CONTINUED

07/08/74

 WATER USE BY RIVER BASIN - ALBERTA 1972
 SUMMARY
 (MILLIONS OF GALLONS)

BASIN 05 SOUTH SASK

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
04	MINES, QUARRIES & OIL WELLS					
0402	MINERAL FUELS					
0402-061	COAL MINES	33	1	34	17	16
0402-064	CRUDE PETR. & NATURAL GAS IND.	1339	66510	67849	398	941
MAJOR	TOTAL	1372	66511	67883	415	957
0404	QUARRIES AND SAND PITS					
0404-087	SAND PITS OR QUARRIES	140	371	511	12	128
MAJOR	TOTAL	140	371	511	12	128
DIVISION	TOTAL	1512	66882	68394	427	1085
05	MANUFACTURING INDUSTRIES					
0501	FOOD AND BEVERAGES					
0501-101	MEAT AND POULTRY PRODUCTS	1406	644	2050	1357	49
0501-103	FRUIT AND VEG PROCESSING PLANT	248		248	208	40
0501-104	DAIRY PRODUCTS	86	93	179	65	21
0501-105	FLOUR & BREAKFAST CEREAL PROD	4		4		4
0501-106	FEED INDUSTRY	9	1	10	5	4
0501-107	BAKERY PRODUCTS	5		5		5
0501-108	MISCELLANEOUS FOOD INDUSTRIES	1295	3325	4620	1254	41
0501-109	BEVERAGE INDUSTRIES	920	1524	2444	756	164
MAJOR	TOTAL	3973	5587	9560	3645	328
0503	RUBBER AND PLASTICS PRODUCTS					
0503-162	RUBBER PRODUCTS INDUSTRIES	67	60	127	62	5
0503-165	PLASTIC FABRICATING INDUSTRY	7		7	7	
MAJOR	TOTAL	74	60	134	69	5
0508	WOOD INDUSTRIES					
0508-251	SAWMILLS, PLANING MILLS, SHINGLE	5		5	5	
0508-259	MISCELLANEOUS WOOD INDUSTRIES	8	15	23	4	4
MAJOR	TOTAL	13	15	28	9	4
0509	FURNITURE & FIXTURE INDUSTRIES					
0509-264	OFFICE FURNITURE MANUF	1		1		1

TABLE 8 CONTINUED

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972

SUMMARY

(MILLIONS OF GALLONS)

BASIN C5 SOUTH SASK

STANDARD INDUSTRIAL CLASS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMPT
0509	FURNITURE & FIXTURE INDUSTRIES					
MAJOR	TOTAL	1		1		1
0510	PAPER & ALLIED INDUSTRIES					
0510-272	ASPHALT ROOFING MANUFACTURERS	185		185	170	15
0510-273	PAPER BOX & BAG MANUF	21	1	22	5	16
0510-274	MISCELLANEOUS PAPER CONVERTERS	1		1		1
MAJOR	TOTAL	207	1	208	175	32
0511	PRINT, PUBLISH, & ALLIED INDUS					
0511-289	PUBLISHING & PRINTING	10		10	6	4
MAJOR	TOTAL	10		10	6	4
0512	PRIMARY METAL INDUSTRIES					
0512-292	STEEL PIPE AND TUBE MILLS	6	295	301	6	
0512-294	IRON FOUNDRIES	28	3	31	27	1
0512-296	ALUMINUM ROLLING, CASTING	35	62	97	34	1
0512-298	METAL ROLLING, CASTING, EXTRUDIN	1		1		1
MAJOR	TOTAL	70	360	430	67	3
0513	METAL FABRICATING INDUSTRIES					
0513-302	FABRICATED STRUCT, METAL INDUS	9		9	9	
0513-305	WIRE PRODUCTS MANUFACTURING	4		4	4	
0513-309	MISC. METAL FABRICATING INDUST	2		2	2	
MAJOR	TOTAL	15		15	15	
0514	MACHINERY INDUSTRIES					
0514-315	MISC MACHINERY & EQUIP MANUF	23		23		23
MAJOR	TOTAL	23		23		23
0515	TRANSPORTATION EQUIP. INDUSTR					
0515-325	MOTOR VEHICLE PARTS & ACCES-MA	8		8	8	

TABLE 8 CONTINUED

07/08/74

 WATER USE BY RIVER BASIN - ALBERTA 1972
 SUMMARY
 (MILLIONS OF GALLONS)

BASIN C5 SOUTH SASK

STANDARD INDUSTRIAL CLASS CODE	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMPTION
0515	TRANSPORTATION EQUIP. INDUSTRY					
0515-326	RAILROAD ROLLING STOCK IND	79	82	161	73	6
MAJOR	TOTAL	87	82	169	81	6
0516	ELECTRICAL PRODUCTS INDUSTRIES					
0516-338	MANUF OF ELECTRICAL CABLE & WIRE	27		27	27	
0516-339	MANUF. OF MISC. ELECTRICAL PROD.	54		54	53	1
MAJOR	TOTAL	81		81	80	1
0517	NON-METALLIC MINERAL PRODUCTS					
0517-351	CLAY PRODUCTS MANUFACTURERS	11		11	7	4
0517-352	CEMENT MANUFACTURERS	117		117	31	86
0517-354	CONCRETE PRODUCTS MANUFACTURER	61	4	65	42	19
0517-355	READYMIX CONCRETE MANUFACTURER	451		451	428	23
0517-356	GLASS AND GLASS PRODUCTS	3	219	222	2	1
0517-358	LIME MANUFACTURERS	109	210	319	26	83
0517-359	MISC. NON-METALLIC MINERAL PROD	17		17		17
MAJOR	TOTAL	769	433	1202	536	233
0518	PETROLEUM AND COAL PRODUCTS					
0518-365	PETROLEUM REFINERIES	6309		6309	5676	632
0518-369	MISC PETROLEUM & COAL PRODUCTS	651		651	614	37
MAJOR	TOTAL	6960		6960	6290	670
0519	CHEMICAL & CHEMICAL PRODUCTS					
0519-372	MIXED FERTILIZERS	13190	6671	19861	12887	307
0519-378	INDUSTRIAL CHEMICALS	714	7260	7974	571	140
0519-379	MISC. CHEMICAL INDUSTRIES	409		409	323	80
MAJOR	TOTAL	14313	13931	28244	13781	530
DIVISION	TOTAL	26596	20469	47065	24754	1840
07	TRANS., COMM. & OTHER UTILITIES					
0704	ELEC. POWER, GAS & WATER UTILI					
0704-572	THERMAL ELECTRIC POWER	14215		14215	14203	1

TABLE 8 CONTINUED

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
SUMMARY
(MILLIONS OF GALLONS)

BASIN 05 SOUTH SASK

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
07	TRANS., COMM. & OTHER UTILITIES					
MAJOR	TOTAL	14215		14215	14203	12
DIVISION	TOTAL	14215		14215	14203	12
RIVERBASIN	TOTAL	42323	87351	129674	39384	2939

TABLE 8 CONTINUED

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
SUMMARY
(MILLIONS OF GALLONS)

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	TOTAL RECIRCULATED	GROSS USAGE	TOTAL DIS- CHARGED	TOTAL CONSUMP
GRAND	TOTAL	355668	317143	672811	343324	12344

TABLE 9

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

BASIN 01 PEACE

STANDARD INDUST'L CLASS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
4	MINES, QUARRIES & OIL WELLS									
402	MINERAL FUELS									
402-064	CRUDE PETR. & NATURAL GAS IND.	1365		755	610	862		26	836	
MAJOR	TOTAL	1365		755	610	862		26	836	
DIVISION	TOTAL	1365		755	610	862		26	836	
5	MANUFACTURING INDUSTRIES									
501	FOOD AND BEVERAGES									
501-101	MEAT AND POULTRY PRODUCTS	9	9			9	9			
501-109	BEVERAGE INDUSTRIES	3	3			2	2			
MAJOR	TOTAL	12	12			11	11			
508	WOOD INDUSTRIES									
508-251	SAWMILLS, PLANING MILLS, SHINGLE	16	16			16	15			
MAJOR	TOTAL	16	16			16	15			
517	NON-METALLIC MINERAL PRODUCTS									
517-355	READYMIX CONCRETE MANUFACTURER	4	4							
MAJOR	TOTAL	4	4							
DIVISION	TOTAL	32	32			27	26			
7	TRANS., COMM. & OTHER UTILITIES									
704	ELEC. POWER, GAS & WATER UTILI									
704-572	THERMAL ELECTRIC POWER	62		62						
MAJOR	TOTAL	62		62						
DIVISION	TOTAL	62		62						
IV-EASN	TOTAL	1459	32	817	610	889	26	26	836	

TABLE 9 CONTINUED

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
(MILLIONS OF GALLONS)

BASIN 02 ATHABASCA

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
04 0402	MINES, QUARRIES & OIL WELLS MINERAL FUELS									
0402-061	COAL MINES	495		480	15	271		150	120	1
0402-064	CRUDE PETR. & NATURAL GAS IND.	992	2	972	18	558		15	543	
MAJOR	TOTAL	1487	2	1452	33	829		165	663	1
0404	QUARRIES AND SAND PITS									
0404-087	SAND PITS OR QUARRIES	6100		6100		2760		2760		
MAJOR	TOTAL	6100		6100		2760		2760		
DIVISION	TOTAL	7587	2	7552	33	3589		2925	663	1
05	MANUFACTURING INDUSTRIES									
0501	FOOD AND BEVERAGES									
0501-104	DAIRY PRODUCTS	4			4					
MAJOR	TOTAL	4			4					
0510	PAPER & ALLIED INDUSTRIES									
0510-271	PULP AND PAPER MILLS	7917		7917		6967	6967			
MAJOR	TOTAL	7917		7917		6967	6967			
DIVISION	TOTAL	7921		7917	4	6967	6967			
RIVER-BASIN	TOTAL	15508	2	15469	37	10556	6967	2925	663	1

TABLE 9 CONTINUED

7/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

BASIN 03 NORTH SASK

STANDARD INDUSTRIAL CLASS CODE	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUBLIC LIC WATER SYSTEM	FROM CO. SURFACE WATER SYS	FROM CO. GROUND WATER SYS	TOTAL DISCHARGED	TO PUBLIC UTILITY SEWER	TO SURFACE WATER BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
402	MINES, QUARRIES & OIL WELLS MINERAL FUELS									
402-064	CRUDE PETR. & NATURAL GAS IND.	890	24	495	370	600		25	562	11
MAJOR	TOTAL	890	24	495	370	600		25	562	11
403	NON-METAL MINING (EXCEPT COAL)									
403-079	MISC. NONMETAL MINES	1580		1580		1580		1580		
MAJOR	TOTAL	1580		1580		1580		1580		
DIVISION	TOTAL	2470	24	2075	370	2180		1605	562	11
501	MANUFACTURING INDUSTRIES FOOD AND BEVERAGES									
501-101	MEAT AND POULTRY PRODUCTS	961	961			816	816			
501-103	FRUIT AND VEG PROCESSING PLANT	8	8			4	4			
501-104	DAIRY PRODUCTS	93	90		3	70	70			
501-105	FLOUR & BREAKFAST CEREAL PROD	1	1			1	1			
501-106	FEED INDUSTRY	149	149			140	140			
501-107	BAKERY PRODUCTS	9	9			6	6			
501-109	BEVERAGE INDUSTRIES	216	216			182	181	1		
MAJOR	TOTAL	1437	1434		3	1219	1218	1		
504	LEATHER INDUSTRIES									
504-172	LEATHER TANNERIES	44	44			44	44			
MAJOR	TOTAL	44	44			44	44			
505	TEXTILES INDUSTRIES									
505-183	MANMADE FIBRE, YARN, CLOTH MILLS	3	3							
MAJOR	TOTAL	3	3							
507	CLOTHING INDUSTRIES									
507-249	MISC CLOTHING IND	3	3			3	3			
MAJOR	TOTAL	3	3			3	3			

TABLE 9 CONTINUED

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

EASIN 03 NORTH SASK

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
0508	WOOD INDUSTRIES									
0508-251	SAWMILLS, PLANING MILLS, SHINGLE	3	3			3	3			
0508-259	MISCELLANEOUS WOOD INDUSTRIES	10	10			1			1	
MAJOR	TOTAL	13	13			4	3		1	
0510	PAPER & ALLIED INDUSTRIES									
0510-272	ASPHALT ROOFING MANUFACTURERS	8		3	5	4				4
0510-273	PAPER BOX & BAG MANUF	4	4			3	3			
MAJOR	TOTAL	12	4	3	5	7	3			4
0512	PRIMARY METAL INDUSTRIES									
0512-291	IRON & STEEL MILLS	1	1			1	1			
0512-292	STEEL PIPE AND TUBE MILLS	42	42			42	42			
0512-294	IRON FOUNDRIES	5	5			3	3			
0512-295	SMEETING AND REFINING	860		860		335		335		
MAJOR	TOTAL	908	48	860		381	46	335		
0513	METAL FABRICATING INDUSTRIES									
0513-302	FABRICATED STRUCT. METAL INDUS	301	251	50		214	202	12		
0513-304	METAL STAMPING, PRESSING INDUST	1	1			1	1			
MAJOR	TOTAL	302	252	50		215	203	12		
0515	TRANSPORTATION EQUIP. INDUSTR									
0515-324	TRUCK BODY & TRAILER MANUF	1	1			1	1			
0515-326	RAILROAD ROLLING STOCK IND	14	14			11	11			
MAJOR	TOTAL	15	15			12	12			
0517	NON-METALLIC MINERAL PRODUCTS									
0517-352	CEMENT MANUFACTURERS	117	96		21	7	7			
0517-354	CONCRETE PRODUCTS MANUFACTURER	29	21		8	9	4	3	1	
0517-355	READYMIX CONCRETE MANUFACTURER	40	10	15	15	30			27	2
0517-356	GLASS AND GLASS PRODUCTS	34	34			22	22			
MAJOR	TOTAL	220	161	15	44	68	33	3	28	2

TABLE 9 CONTINUED

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07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

EASIN 03 NORTH SASK

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
0518	PETROLEUM AND COAL PRODUCTS									
0518-365	PETROLEUM REFINERIES	2063	23	1990	50	1532		1441	89	
0518-369	MISC PETROLEUM & COAL PRODUCTS	125	81	44		84	84			
MAJOR	TOTAL	2188	104	2034	50	1616	84	1441	89	
0519	CHEMICAL & CHEMICAL PRODUCTS									
0519-372	MIXED FERTILIZERS	910	910			377		377		
0519-373	PLASTICS & SYNTHETIC RESINS	156	156			43	1	15	27	
0519-378	INDUSTRIAL CHEMICALS	3709	29	3678	1	2713	23	2601	89	
0519-379	MISC. CHEMICAL INDUSTRIES	19	7	12		15	1		2	12
MAJOR	TOTAL	4794	1102	3690	1	3148	25	2993	118	12
0520	MISC. MANUFACTURING IND.									
0520-399	MISC. MANUFACT. INDUSTRIES NES	49	49			45	45			
MAJOR	TOTAL	49	49			45	45			
DIVISION	TOTAL	9988	3232	6652	103	6762	1719	4785	236	18
07	TRANS., COMM. & OTHER UTILITIE									
0704	ELEC. POWER, GAS & WATER UTILI									
0704-572	THERMAL ELECTRIC POWER	283268	550	282718		283011		272304		10705
MAJOR	TOTAL	283268	550	282718		283011		272304		10705
DIVISION	TOTAL	283268	550	282718		283011		272304		10705
RIV-EASIN	TOTAL	295726	3806	291445	473	291953	1719	278694	798	10734

TABLE 9 CONTINUED

7/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

BASIN 04 RED DEER

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBL C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
04	MINES, QUARRIES & OIL WELLS									
0402	MINERAL FUELS									
0402-064	CRUDE PETR. & NATURAL GAS IND.	418		298	119	320		249	48	23
MAJOR	TOTAL	418		298	119	320		249	48	23
DIVISION	TOTAL	418		298	119	320		249	48	23
05	MANUFACTURING INDUSTRIES									
0501	FOOD AND BEVERAGES									
0501-101	MEAT AND POULTRY PRODUCTS	142	121		21	142	141			
0501-104	DAIRY PRODUCTS	77	49	28		76	76			
0501-109	BEVERAGE INDUSTRIES	3	3			3	3			
MAJOR	TOTAL	222	173	28	21	221	220			
0518	PETROLEUM AND COAL PRODUCTS									
0518-365	PETROLEUM REFINERIES	12		7	4	1		1		
MAJOR	TOTAL	12		7	4	1		1		
DIVISION	TOTAL	234	173	35	25	222	220	1		
RIVER-BASIN	TOTAL	652	173	333	144	542	220	250	48	23

TABLE 9 CONTINUED

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07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

BASIN 05 SOUTH SASK

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLIC UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
04	MINES, QUARRIES & OIL WELLS									
0402	MINERAL FUELS									
0402-061	COAL MINES	33	4	20	8	17		10	7	
0402-064	CRUDE PETR. & NATURAL GAS IND.	1339	59	1135	144	398		159	63	173
MAJOR	TOTAL	1372	63	1155	152	415		169	70	173
0404	QUARRIES AND SAND PITS									
0404-087	SAND PITS OR QUARRIES	140		129	11	12			12	
MAJOR	TOTAL	140		129	11	12			12	
	DIVISION TOTAL	1512	63	1284	163	427		169	82	173
05	MANUFACTURING INDUSTRIES									
0501	FOOD AND BEVERAGES									
0501-101	MEAT AND POULTRY PRODUCTS	1406	719		687	1357	1351	6		
0501-103	FRUIT AND VEG PROCESSING PLANT	248	248			208	127	4	2	75
0501-104	DAIRY PRODUCTS	86	86			65	65			
0501-105	FLOUR & BREAKFAST CEREAL PROD	4	4							
0501-106	FEED INDUSTRY	9	1		7	5	4		1	
0501-107	BAKERY PRODUCTS	5	5							
0501-108	MISCELLANEOUS FOOD INDUSTRIES	1295	90	1203		1254	50	1189	7	5
0501-109	BEVERAGE INDUSTRIES	920	450		469	756	678			77
MAJOR	TOTAL	3973	1603	1203	1163	3645	2275	1199	10	157
0503	RUBBER AND PLASTICS PRODUCTS									
0503-162	RUBBER PRODUCTS INDUSTRIES	67	1		66	62	62			
0503-165	PLASTIC FABRICATING INDUSTRY	7	7			7	7			
MAJOR	TOTAL	74	8		66	69	69			
0508	WOOD INDUSTRIES									
0508-251	SAWMILLS, PLANING MILLS, SHINGLE	5	5			5	5			
0508-259	MISCELLANEOUS WOOD INDUSTRIES	8	8			4	4			
MAJOR	TOTAL	13	13			9	9			
0509	FURNITURE & FIXTURE INDUSTRIES									
0509-264	OFFICE FURNITURE MANUF	1	1							

TABLE 9 CONTINUED

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

BASIN 05 SOUTH SASK

STANDARD INDUSTRIAL CLASS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS-CHARGED	TO PUBLIC UTILITY SEWER	TO SURF-ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
0509	FURNITURE & FIXTURE INDUSTRIES									
MAJOR	TOTAL	1	1							
0510	PAPER & ALLIED INDUSTRIES									
0510-272	ASPHALT ROOFING MANUFACTURERS	185	170		15	170	170			
0510-273	PAPER BOX & BAG MANUF	21	21			5	4			
0510-274	MISCELLANEOUS PAPER CONVERTERS	1	1							
MAJOR	TOTAL	207	192		15	175	174			
0511	PRINT, PUBLISH, & ALLIED INDUS									
0511-289	PUBLISHING & PRINTING	10	10			6	6			
MAJOR	TOTAL	10	10			6	6			
0512	PRIMARY METAL INDUSTRIES									
0512-292	STEEL PIPE AND TUBE MILLS	6	6			6	6			
0512-294	IRON FOUNDRIES	28	28			27	2			
0512-296	ALUMINUM ROLLING, CASTING	35	35			34	34			25
0512-298	METAL ROLLING, CASTING, EXTRUDIN	1	1							
MAJOR	TOTAL	70	70			67	42			25
0513	METAL FABRICATING INDUSTRIES									
0513-302	FABRICATED STRUCT. METAL INDUS	9	9			9	9			
0513-305	WIRE PRODUCTS MANUFACTURING	4	4			4	4			
0513-309	MISC. METAL FABRICATING INDUST	2	2			2	2			
MAJOR	TOTAL	15	15			15	15			
0514	MACHINERY INDUSTRIES									
0514-315	MISC MACHINERY & EQUIP MANUF	23	23							
MAJOR	TOTAL	23	23							
0515	TRANSPORTATION EQUIP. INDUSTR									
0515-325	MOTOR VEHICLE PARTS & ACCES-MA	8	8			8	8			

TABLE 9 CONTINUED

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

EASIN 05 SOUTH SASK

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
0515	TRANSPORTATION EQUIP. INDSTR									
0515-326	RAILROAD ROLLING STOCK IND	79	79			73	49		23	
MAJOR	TOTAL	87	87			81	57		23	
0516	ELECTRICAL PRODUCTS INDUSTRIES									
0516-338	MANUF OF ELECTRICAL CABE & WIRE	27	27			27	27			
0516-339	MANUF. OF MISC. ELECTRICAL PROD	54	54			53	51			
MAJOR	TOTAL	81	81			80	78			
0517	NON-METALLIC MINERAL PRODUCTS									
0517-351	CLAY PRODUCTS MANUFACTURERS	11	11			7	7			
0517-352	CEMENT MANUFACTURERS	117		117		31		31		
0517-354	CONCRETE PRODUCTS MANUFACTURER	61	12	48	1	42		42		
0517-355	READYMIX CONCRETE MANUFACTURER	451	3	421	26	428		421	6	
0517-356	GLASS AND GLASS PRODUCTS	3	3			2	1			
0517-358	LIME MANUFACTURERS	109			109	26			26	
0517-359	MISC. NON-METALLIC MINERAL PRO	17	17							
MAJOR	TOTAL	769	46	586	136	536	8	494	32	
0518	PETROLEUM AND COAL PRODUCTS									
0518-365	PETROLEUM REFINERIES	6309		6309		5676		5676		
0518-369	MISC PETROLEUM & COAL PRODUCTS	651	6	645		614	5	609		
MAJOR	TOTAL	6960	6	6954		6290	5	6285		
0519	CHEMICAL & CHEMICAL PRODUCTS									
0519-372	MIXED FERTILIZERS	13190	17	13123	55	12887		12826		60
0519-378	INDUSTRIAL CHEMICALS	714	3	711		571		571		
0519-379	MISC. CHEMICAL INDUSTRIES	409	1		408	323			323	
MAJOR	TOTAL	14313	21	13834	463	13781		13397	323	60
DIVISION	TOTAL	26596	2176	22577	1843	24754	2738	21375	413	217
07	TRANS., COMM. & OTHER UTILITIE									
0704	ELEC. POWER, GAS & WATER UTILI									
0704-572	THERMAL ELECTRIC POWER	14215		14215		14203		14203		

TABLE 9 CONTINUED

07/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

BASIN C5 SOUTH SASK

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CO. SURFACE WATR SYS	FROM CO. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
07 TRANS., COMM. & OTHER UTILITIE										
MAJOR	TOTAL	14215		14215		14203		14203		
DIVISION	TOTAL	14215		14215		14203		14203		
RIV-EASN	TOTAL	42323	2239	38076	2006	39384	2738	35747	495	390

TABLE 9 CONTINUED

7/08/74

WATER USE BY RIVER BASIN - ALBERTA 1972
 INTAKE BY SOURCE OF SUPPLY - DISCHARGE BY POINT OF RETURN
 (MILLIONS OF GALLONS)

STANDARD INDUST'L CLAS COD	STANDARD INDUSTRIAL CLASSIFICATION	1972 TOTAL IN-TAKE	FROM PUB LIC WAT SYSTEM	FROM CD. SURFACE WATR SYS	FROM CD. GROUND WATR SYS	TOTAL DIS- CHARGED	TO PUBLI C UTILITY SEWER	TO SURF- ACE WATR BODY	TO WELL GROUND SEEPAGE	TRANSFER FOR REUSE
GRAND	TOTAL	355668	6252	346140	3270	343324	11670	317642	2840	11148

APPENDIX I
STANDARD INDUSTRIAL CLASSIFICATION CODE

STANDARD INDUSTRIAL CLASSIFICATION CODE

LIST OF GROUPS AND CLASSES

DIVISION 1 - AGRICULTURE

IND.

NO. Major Group 1 - Experimental and Institutional Farms

001 Experimental and University Farms

003 Institutional Farms

Major Group 2 - Farms (except Experimental and Institutional Farms)

011 Livestock and Livestock Combination Farms

013 Field Crop and Field Crop Combination Farms

015 Fruit and Vegetable Farms

017 Other Crop and Livestock Combination Farms

019 Miscellaneous Specialty Farms

Major Group 3 - Services Incidental to Agriculture

021 Services Incidental to Agriculture

DIVISION 2 - FORESTRY

Major Group 1 - Logging

031 Logging

Major Group 2 - Forestry Services

039 Forestry Services

DIVISION 3 - FISHING AND TRAPPING

Major Group 1 - Fishing

041 Fishing

Major Group 2 - Fishery Services

045 Fishery Services

Major Group 3 - Hunting and Trapping

047 Hunting and Trapping

IND.
NO.

DIVISION 4 - MINES (INCLUDING MILLING), QUARRIES AND OIL WELLS

Major Group 1 - Metal Mines

051 Placer Gold Mines
052 Gold Quartz Mines
057 Uranium Mines
058 Iron Mines
059 Miscellaneous Metal Mines

Major Group 2 - Mineral Fuels

061 Coal Mines
064 Crude Petroleum and Natural Gas Industry

Major Group 3 - Non-Metal Mines (except Coal Mines)

071 Asbestos Mines
072 Peat Extraction
073 Gypsum Mines
079 Miscellaneous Non-Metal Mines

Major Group 4 - Quarries and Sand Pits

083 Stone Quarries
087 Sand Pits or Quarries

Major Group 5 - Services Incidental to Mining

096 Contract Drilling for Petroleum
098 Other Contract Drilling
099 Miscellaneous Services Incidental to Mining

DIVISION 5 - MANUFACTURING INDUSTRIES

Major Group 1 - Food and Beverage Industries

101 Meat and Poultry Products Industries
102 Fish Products Industry
103 Fruit and Vegetable Processing Industries
104 Dairy Products Industry
105 Flour and Breakfast Cereal Products Industry
106 Feed Industry
107 Bakery Products Industries
108 Miscellaneous Food Industries
109 Beverage Industries

Major Group 2 - Tobacco Products Industries

151 Leaf Tobacco Processors
153 Tobacco Products Manufacturers

DIVISION 5 - MANUFACTURING INDUSTRIES (CONTINUED)

IND.

NO. Major Group 3 - Rubber and Plastics Products Industries

162 Rubber Products Industries

165 Plastics Fabricating Industry, n.e.s.

Major Group 4 - Leather Industries

172 Leather Tanneries

174 Shoe Factories

175 Leather Glove Factories

179 Luggage, Handbag and Small Leather Goods Manufacturers

Major Group 5 - Textile Industries

181 Cotton Yarn and Cloth Mills

182 Wool Yarn and Cloth Mills

183 Man-made Fibre, Yarn and Cloth Mills

184 Cordage and Twine Industry

185 Felt and Fibre Processing Mills

186 Carpet, Mat and Rug Industry

187 Canvas Products, and Cotton and Jute Bags Industries

188 Automobile Fabric Accessories Industry

189 Miscellaneous Textile Industries

Major Group 6 - Knitting Mills

231 Hosiery Mills

239 Knitting Mills (except Hosiery Mills)

Major Group 7 - Clothing Industries

243 Men's Clothing Industries

244 Women's Clothing Industries

245 Children's Clothing Industry

246 Fur Goods Industry

248 Foundation Garment Industry

249 Miscellaneous Clothing Industries

Major Group 8 - Wood Industries

251 Sawmills, Planing Mills and Shingle Mills

252 Veneer and Plywood Mills

254 Sash, Door and Other Millwork Plants

256 Wooden Box Factories

258 Coffin and Casket Industry

259 Miscellaneous Wood Industries

Major Group 9 - Furniture and Fixture Industries

261 Household Furniture Manufacturers

264 Office Furniture Manufacturers

266 Miscellaneous Furniture and Fixtures Manufacturers

268 Electric Lamp and Shade Manufacturers

DIVISION 5 - MANUFACTURING INDUSTRIES (CONTINUED)

IND.

NO. Major Group 10 - Paper and Allied Industries

- 271 Pulp and Paper Mills
- 272 Asphalt Roofing Manufacturers
- 273 Paper Box and Bag Manufacturers
- 274 Miscellaneous Paper Converters

Major Group 11 - Printing, Publishing and Allied Industries

- 286 Commercial Printing
- 287 Platemaking, Typesetting and Trade Bindery Industry
- 288 Publishing Only
- 289 Publishing and Printing

Major Group 12 - Primary Metal Industries

- 291 Iron and Steel Mills
- 292 Steel Pipe and Tube Mills
- 294 Iron Foundries
- 295 Smelting and Refining
- 296 Aluminum Rolling, Casting and Extruding
- 297 Copper and Copper Alloy Rolling, Casting and Extruding
- 298 Metal Rolling, Casting and Extruding, n.e.s.

Major Group 13 - Metal Fabricating Industries (except Machinery and Transportation Equipment Industries)

- 301 Boiler and Plate Works
- 302 Fabricated Structural Metal Industry
- 303 Ornamental and Architectural Metal Industry
- 304 Metal Stamping, Pressing and Coating Industry
- 305 Wire and Wire Products Manufacturers
- 306 Hardware, Tool and Cutlery Manufacturers
- 307 Heating Equipment Manufacturers
- 308 Machine Shops
- 309 Miscellaneous Metal Fabricating Industries

Major Group 14 - Machinery Industries (except Electrical Machinery)

- 311 Agricultural Implement Industry
- 315 Miscellaneous Machinery and Equipment Manufacturers
- 316 Commercial Refrigeration and Air Conditioning Equipment Manufacturers
- 318 Office and Store Machinery Manufacturers

DIVISION 5 - MANUFACTURING INDUSTRIES (CONTINUED)

IND.

No. Major Group 15 - Transportation Equipment Industries

321 Aircraft and Aircraft Parts Manufacturers
 323 Motor Vehicle Manufacturers
 324 Truck Body and Trailer Manufacturers
 325 Motor Vehicle Parts and Accessories Manufacturers
 326 Railroad Rolling Stock Industry
 327 Shipbuilding and Repair
 328 Boatbuilding and Repair
 329 Miscellaneous Vehicle Manufacturers

Major Group 16 - Electrical Products Industries

331 Manufacturers of Small Electrical Appliances
 332 Manufacturers of Major Appliances (Electric and Non-Electric)
 333 Manufacturers of Lighting Fixtures
 334 Manufacturers of Household Radio and Television Receivers
 335 Communications Equipment Manufacturers
 336 Manufacturers of Electrical Industrial Equipment
 338 Manufacturers of Electric Wire and Cable
 339 Manufacturers of Miscellaneous Electrical Products

Major Group 17 - Non-Metallic Mineral Products Industries

351 Clay Products Manufacturers
 352 Cement Manufacturers
 353 Stone Products Manufacturers
 354 Concrete Products Manufacturers
 355 Ready-Mix Concrete Manufacturers
 356 Glass and Glass Products Manufacturers
 357 Abrasives Manufacturers
 358 Lime Manufacturers
 359 Miscellaneous Non-Metallic Mineral Products Industries

Major Group 18 - Petroleum and Coal Products Industries

365 Petroleum Refineries
 369 Miscellaneous Petroleum and Coal Products Industries

Major Group 19 - Chemical and Chemical Products Industries

372 Manufacturers of Mixed Fertilizers
 373 Manufacturers of Plastics and Synthetic Resins
 374 Manufacturers of Pharmaceuticals and Medicines
 375 Paint and Varnish Manufacturers
 376 Manufacturers of Soap and Cleaning Compounds
 377 Manufacturers of Toilet Preparations
 378 Manufacturers of Industrial Chemicals
 379 Miscellaneous Chemical Industries

Major Group 20 - Miscellaneous Manufacturing Industries

391 Scientific and Professional Equipment Industries
 392 Jewellery and Silverware Industry
 393 Sporting Goods and Toy Industries
 397 Signs and Displays Industry
 399 Miscellaneous Manufacturing Industries, n.e.s.

DIVISION 6 - CONSTRUCTION INDUSTRY

IND.

- NO. Major Group 1 - General Contractors
- 404 Building Construction
- 406 Highway, Bridge and Street Construction
- 409 Other Construction
- Major Group 2 - Special-Trade Contractors
- 421 Special-Trade Contractors

DIVISION 7 - TRANSPORTATION, COMMUNICATION AND OTHER UTILITIES

Major Group 1 - Transportation

- 501 Air Transport
- 502 Services Incidental to Air Transport
- 503 Railway Transport
- 504 Water Transport
- 505 Services Incidental to Water Transport
- 506 Moving and Storage, Used Goods, Uncrated
- 507 Other Truck Transport
- 508 Bus Transport, Interurban and Rural
- 509 Urban Transit Systems
- 512 Taxicab Operations
- 515 Pipeline Transport
- 516 Highway and Bridge Maintenance
- 517 Miscellaneous Services Incidental to Transport
- 519 Other Transportation

Major Group 2 - Storage

- 524 Grain Elevators
- 527 Other Storage and Warehousing

Major Group 3 - Communication

- 543 Radio and Television Broadcasting
- 544 Telephone Systems
- 545 Telegraph and Cable Systems
- 548 Post Office

Major Group 4 - Electric Power, Gas and Water Utilities

- 572 Electric Power
- 574 Gas Distribution
- 576 Water Systems
- 579 Other Utilities

DIVISION 8 - TRADE

IND.

NO. Major Group 1 - Wholesale Trade

602	Wholesalers of Farm Products
606	Wholesalers of Coal and Coke
608	Wholesalers of Petroleum Products
611	Wholesalers of Paper and Paper Products
612	Wholesalers of General Merchandise
614	Wholesalers of Food
615	Wholesalers of Tobacco Products
616	Wholesalers of Drugs and Toilet Preparations
617	Wholesalers of Apparel and Dry Goods
618	Wholesalers of Household Furniture and Furnishings
619	Wholesalers of Motor Vehicles and Accessories
621	Wholesalers of Electrical Machinery, Equipment and Supplies
622	Wholesalers of Farm Machinery and Equipment
623	Wholesalers of Machinery and Equipment, n.e.s.
624	Wholesalers of Hardware, Plumbing and Heating Equipment
625	Wholesalers of Metal and Metal Products, n.e.s.
626	Wholesalers of Lumber and Building Materials
627	Wholesalers of Scrap and Waste Materials
629	Wholesalers, n.e.s.

Major Group 2 - Retail Trade

631	Food Stores
642	General Merchandise Stores
652	Tire, Battery and Accessories Stores
654	Gasoline Service Stations
656	Motor Vehicle Dealers
658	Motor Vehicle Repair Shops
663	Shoe Stores
665	Men's Clothing Stores
667	Women's Clothing Stores
669	Clothing and Dry Goods Stores, n.e.s.
673	Hardware Stores
676	Household Furniture and Appliance Stores
678	Radio, Television and Electrical Appliance Repair Shops
681	Drug Stores
691	Book and Stationery Stores
692	Florists' Shops
694	Jewellery Stores
695	Watch and Jewellery Repair Shops
696	Liquor, Wine and Beer Stores
697	Tobacconists
699	Retail Stores, n.e.s.

DIVISION 9 - FINANCE, INSURANCE AND REAL ESTATE

Major Group 1 - Finance Industries

701	Banks and Other Deposit Accepting Establishments
703	Other Credit Agencies
705	Security Brokers and Dealers (including Exchanges)
707	Investment and Holding Companies
715	Canadian Offices of Canadian-Incorporated Companies Classified as Non-Canadian

DIVISION 9 - FINANCE, INSURANCE AND REAL ESTATE (CONTINUED)

IND.

NO. Major Group 2 - Insurance Carriers

721 Insurance Carriers

Major Group 3 - Insurance Agencies and Real Estate Industry

735 Insurance and Real Estate Agencies

737 Real Estate Operators

DIVISION 10 - COMMUNITY, BUSINESS AND PERSONAL SERVICE INDUSTRIES

Major Group 1 - Education and Related Services

801 Kindergardens and Nursery Schools

802 Elementary and Secondary Schools

803 Schools of Art and of the Performing Arts

804 Vocational Centers, Trade Schools and Business Colleges

805 Post-Secondary Non-University Educational Institutions

806 Universities and Colleges

807 Libraries, Museums and Other Repositories

809 Education and Related Services, n.e.s.

Major Group 2 - Health and Welfare Services

821 Hospitals

822 Related Health Care Institutions

823 Offices of Physicians and Surgeons

824 Offices of Para-medical Personnel (Practitioners)

825 Offices of Dentists

826 Diagnostic and Therapeutic Services, n.e.s.

827 Miscellaneous Health Services

828 Welfare Organizations

Major Group 3 - Religious Organizations

831 Religious Organizations

Major Group 4 - Amusement and Recreation Services

841 Motion Picture Theatres

842 Motion Picture Production and Distribution

843 Bowling Alleys and Billiard Parlours

844 Golf Clubs and Country Clubs

845 Theatrical and Other Staged Entertainment Services

849 Miscellaneous Amusement and Recreation Services

Major Group 5 - Services to Business Management

851 Employment Agencies and Personnel Suppliers

853 Computer Services

855 Security and Investigation Services

861 Offices of Accountants

862 Advertising Services

863 Offices of Architects

864 Engineering and Scientific Services

866 Offices of Lawyers and Notaries

867 Offices of Management and Business Consultants

869 Miscellaneous Services to Business Management

DIVISION 10 - COMMUNITY, BUSINESS AND PERSONAL SERVICE INDUSTRIES (CONTINUED)

IND.

NO. Major Group 6 - Personal Services

871 Shoe Repair Shops
 872 Barber and Beauty Shops
 873 Private Households
 874 Laundries, Cleaners and Pressers (except Self-Service)
 876 Self-service Laundries and Dry Cleaners
 877 Funeral Services
 879 Miscellaneous Personal Services

Major Group 7 - Accommodation and Food Services

881 Hotels and Motels
 883 Lodging Houses and Residential Clubs
 884 Camping Grounds and Trailer Parks
 886 Restaurants, Caterers and Taverns

Major Group 8 - Miscellaneous Services

891 Labour Organizations and Trade Associations
 893 Photographic Services, n.e.s.
 894 Automobile and Truck Rental
 895 Machinery and Equipment Rental
 896 Blacksmithing and Welding Shops
 897 Miscellaneous Repair Shops
 898 Services to Buildings and Dwellings
 899 Miscellaneous Services, n.e.s.

DIVISION 11 - PUBLIC ADMINISTRATION AND DEFENCE

Major Group 1 - Federal Administration

902 Defence Services
 909 Other Federal Administration

Major Group 2 - Provincial Administration

931 Provincial Administration

Major Group 3 - Local Administration

951 Local Administration

Major Group 4 - Other Government Offices

991 Other Government Offices

DIVISION 12 - INDUSTRY UNSPECIFIED OR UNDEFINED

999 Canadian-Incorporated Companies Classified as Non-Canadian
 000 Unspecified or Undefined

APPENDIX II
GENERALIZED SHORT QUESTIONNAIRE

INDUSTRIAL WATER USE 1972

Return to:

ALBERTA DEPARTMENT OF THE ENVIRONMENT
10040 -- 104 Street
Edmonton, Alberta
T5J 0Z6

The total quantity of water intake in this establishment during the entire year 1972 was:
(Mark one box only)

☐ Under 100,000 imperial gallons

☐ 100,000 to 500,000 imperial gallons

☐ 500,000 to 1 million imperial gallons

☐ 5 to 10 million imperial gallons

☐ 1 to 5 million imperial gallons

☐ 10 million imperial gallons or over

APPENDIX III
DETAILED WATER USE QUESTIONNAIRE, 1972

INDUSTRIAL WATER USE

1972

RETURN TO

ALBERTA DEPARTMENT OF THE ENVIRONMENT
10040 — 104 Street
Edmonton, Alberta
T5J 0Z6

Name of person we may contact regarding this report:	Address (Number, street, city)	Postal code	Telephone No.	Extension
Signature	Title		Date	

INSTRUCTIONS

GENERAL — Please report all quantities in imperial gallons. Do not report in gallons per minute or gallons per day.

If no water is used, treated, or discharged, report "None." If your records on water used are in cubic feet, convert to gallons (1 cubic foot equals 6.2 gallons). Reasonably accurate estimates are acceptable.

If you are in charge of several plants, please request additional questionnaires from us and fill out one questionnaire per plant.

Item I — WATER INTAKE BY KIND AND SOURCE

1. List water supplied by a water system other than your own (whether municipally or privately owned).
2. through 4. List water obtained from your own water supply system.
3. If you have more than one ground water system (well), please list total intake from them. Please list their locations under remarks.

Item II — WATER INTAKE BY PURPOSE

1. Process water is all water that comes directly in contact with products and/or materials, including water which is consumed in the manufacture of products.
- 2, 3, 5, and 6 — Self-explanatory
4. Include water which is used for cooling and condensing purposes in conjunction with the operation of process equipment, but which does not come in direct contact with products or materials.

Item III — WATER RECIRCULATED AND REUSED BY PURPOSE

If no water was recirculated or reused, mark "No" on line 1 and skip to item IV.

If you recirculated or reused water, mark "Yes" on line 1 and report on lines 2 through 7 the estimated quantity of water that would have been

required if no water had been recirculated or reused. For example: if total water intake (item I) was 400 million gallons and of this 400 million gallons, 100 million gallons were used twice for cooling purposes and once for washing products or materials, the total water required would be 300 million gallons (less consumption and evaporation loss), plus the 300 million gallons not recirculated, for a total of 600 million gallons. Distribute this total (600 million) by the purposes for which it was used.

Item IV — WATER DISCHARGED BY POINT OF DISCHARGE

Include all water brought to ultimate discharge point whether treated or not. Do not include water held in your ponds, lagoons, or basins, for reuse or treatment, until actually discharged. Do not report water evaporated or otherwise consumed and not brought to ultimate discharge point.

1. Report water discharged to public utility sewer systems, whether municipally or privately owned.
2. — Self-explanatory
3. Include seepage into ground from your holding ponds, lagoons, etc. (Note — If water is transferred to an agricultural establishment for spray irrigation, report such quantity on line 4).
4. Include transfers, after your own use, to another establishment of either your company or another company.

Item VII — WATER TREATED BY METHOD OF TREATMENT

Where requested report total quantity of water treated for —

- Control of biological growth.
- Removal of suspended or dissolved solids.
- Corrosion control.
- Any other purpose by simple or complex methods.

Your remarks would be appreciated:

ITEM I WATER INTAKE BY KIND AND SOURCE 1972			
	Name or Location	Imperial Gallons for the Year	CODE
1. Public (municipal) water system	150 Name		120
2. Company surface water system, such as streams or lakes	570 Name		130
3. Company ground water systems, such as wells	172 Location Sec. Twp. Rge. Mer.		140
4. TOTAL (Sum of lines 1 through 3)			460

ITEM II WATER INTAKE BY PURPOSE 1972		
1. Process		220
2. Cooling and Condensing – For steam electric power generation		228
3. – For air-conditioning		238
4. – For other cooling and condensing		246
5. Boiler makeup		254
6. Sanitary service and other uses		262
7. TOTAL (Sum of lines 1 through 6 should equal item 1 line 4)		270

ITEM III WATER RECIRCULATED OR REUSED BY PURPOSE 1972		
1. Was any water recirculated or reused?	☐ No If "No" mark "No" and skip to item IV. ☐ Yes	170
2. Process		820
3. Cooling and Condensing – For steam electric power generation		828
4. – For air-conditioning		838
5. – For other cooling and condensing		846
6. Boiler makeup		854
7. Sanitary service and other uses		862
8. TOTAL (Sum of lines 2 through 7)		870

ITEM IV WATER DISCHARGED BY POINT OF DISCHARGE 1972		
1. Public (municipal) utility sewer		520
2. Surface water body, such as stream, lake, etc.	560 Name	530
3. Ground (wells, spray, seepage, etc.)		540
4. Transferred to other users for reuse		550
5. TOTAL (Sum of lines 1 through 4)		760

ITEM V MONTHLY TOTALS 1972								
	Imperial Gallons for each month							
	January	CODE	February	CODE	March	CODE	April	CODE
1. Water Intake		320		325		330		335
2. Water discharged		620		625		630		635
	May		June		July		August	
		340		345		350		355
1. Water Intake		340		345		350		355
2. Water discharged		640		645		650		655
	September		October		November		December	
		360		365		370		375
1. Water Intake		360		365		370		375
2. Water discharged		660		665		670		675

Please continue on page 4

A. INTAKEWATER Intake water (included in item I) treated prior to use. Exclude water treated only by chlorination.			B. WATER RECIRCULATED Water (included in item III) treated prior to recirculation or reuse.		
1. (Mark one) ☐ None treated ☐ Some treated			1. (Mark one) ☐ None treated ☐ Some treated		
2. If some water was treated, enter quantity treated (gallons). 161			2. If some water was treated, enter quantity treated (gallons). 164		
3. Report quantities treated by method of treatment. ¹			3. Report quantities treated by method of treatment. ² If quantities are unknown circle the method(s) of treatment only.		
Method of treatment	Imperial Gallons for the year	163	Method of treatment	Imperial Gallons for the year	166
Aeration		928	Aeration		1026
Coagulation		932	Coagulation		1032
Filtration		938	Filtration		1038
Softening		944	Softening		1044
Ion exchange		950	Ion exchange		1050
Corrosion control		956	Corrosion control		1056
pH		962	pH		1062
Settling		968	Settling		1068
Other (Specify)		974	Flotation		1074
			Other (Specify)		1120

C. WATER DISCHARGED Water (included in item IV) treated prior to discharge.		
1. (Mark one) ☐ None treated ☐ Some treated		
2. If some water was treated, enter quantity treated (gallons). 167		
3. Report quantities treated by method of treatment. ³		
Method of treatment	Imperial Gallons for the year	169
Coagulation		1132
Primary settling		1138
Secondary settling		1144
Trickling filters		1150
Activated sludge		1156
Digestion (waste water, sludges etc.)		1162
Ponds or lagoons		1168
pH		1174
Sand filtration		1220
Chlorination		1226
Flotation		1232
Other (Specify)		1238

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ENVIRONMENT

Environmental Planning Division

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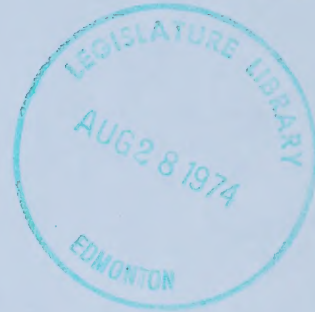
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OUR FILE: 13880-B

August 8, 1974



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Please find enclosed, for your library, a copy of "Alberta Industrial Water Use Survey, 1972 Volume I".

Yours truly

A handwritten signature in blue ink that reads "Roger Lefrancois".

Roger Lefrancois
Section Head
Demand Analysis Section
Environmental Demand and
Problem Analysis Branch

RL:lab

Encl:

